Receipt of Preventive Care Among Adults: Insurance Status and Usual Source of Care

Jennifer E. DeVoe, MD, DPhil, George E. Fryer, PhD, Robert Phillips, MD, MSPH, and Larry Green, MD

Objectives. This study ascertained the separate and combined effects of having insurance and a usual source of care on receiving preventive services.

Methods. Descriptive and multivariate analyses of 1996 Medical Expenditure Panel Survey data were conducted.

Results. Receipt of preventive services was strongly associated with insurance and a usual source of care. Significant differences were found between insured adults with a usual source of care, who were most likely to have received services, compared with uninsured adults without regular care, who were least likely to have received services. Those with either a usual source of care or insurance had intermediate levels of preventive services.

Conclusions. Having a usual source of care and health insurance are both important to achieving national prevention goals. (*Am J Public Health.* 2003;93:786–791)

Obtaining preventive care services in the US health care system is not an easy task. In the maze of services, providers, and financing arrangements, health insurance coverage has been shown to contribute to better health outcomes.[1–3] Despite this evidence, repeated attempts to extend health insurance coverage to everyone in the United States have failed, and recent estimates suggest that nearly 43 million people (16% of the population) have no health insurance.[4,5] Although reports indicate that this number might be declining, it has increased from 1989 reports of 33.4 million.[4,6] One example of an increase in this population is the growing number of uninsured people in New York State, where 1 in 5 were uninsured in 1997, an increase of 46% from 1990.[7]

Amid stymied efforts to extend insurance coverage, other strategies for improving access and health outcomes are being explored. For example, a surprisingly large number of uninsured people have been able to establish a regular, ongoing relationship with either a health service facility or an individual provider as a "usual source of care."[8,9] Once people secure a usual source of care, they are more likely than those without a usual source of care to gain access to services, including preventive care[8,10–15] and regular physician visits.[12] A consistent source of care also has been associated with lower use of the emergency department and shorter lengths of stay in the hospital.[16–20] The development of a continuous relationship with a medical caregiver is especially important for people with chronic illnesses and mental health problems.[21–23] When people lack a usual source of care, their access to necessary services is reduced,[11,12,24–28] which may result in poorer health outcomes.[29] When directly compared with health insurance status, usual source of care has been found to be a stronger predictor of access to care[30] and to have a stronger influence on the receipt of preventive services[10] and the likelihood of timely visits to health care facilities.[30]

Noting these favorable effects of having a usual source of care, some have concluded that linking every person to a regular provider may be more feasible than pursuing further attempts to implement national health insurance. Some states have outlined explicit policies to ensure that certain groups of people have a regular source of care.[13,18,19] The Bush administration has proposed increasing federal support for community health centers and other critical facilities that serve as regular sites of care for millions.[31–33] The effects of these strategies depend, in part, on the interactive effects of having health insurance and a usual source of care, and this interaction has not received much scrutiny.

We used nationally representative data to describe the relation of health insurance status and having a usual source of care to receipt of preventive services; people were characterized as having neither, both, or one or the other. We then assessed the extent to which usual source of care and health insurance status influence, together and independently, the likelihood that a person will receive preventive care and thus may represent discrete, important policy options for improving health promotion and disease prevention.

METHODS

Data Source

Data used in this cross-sectional study were taken from the 1996 Medical Expenditure Panel Survey data, which were sponsored and made available to the public by the Agency for Health Care Research and Quality.[27] The Medical Expenditure Panel Survey consists of information on a nationally representative sample of civilian, noninstitutionalized persons in the United States.[34] A sample of households from the previous year's National Health Interview Survey was designated eligible to participate in the 1996 Medical Expenditure Panel Survey.[27] Computer-assisted personal interviewing was used for data collection. Our study was restricted to the 14 995 Medical Expenditure Panel Survey participants aged 18 years or older.

Study Variables

Prevention. This study included reports from adults (≥18 years of age) about preventive services received during 1996. A total of 9 preventive services were analyzed (5 services among all respondents, 3 services among women only, 1 service among men only). Specific services included blood pressure check, cholesterol check, physical ex-

TABLE 1—Preventive Services Received by Adults Within the Past Year and Odds of Receiving Them, Adjusted for Sociodemographic Variables and Perceived Health Status

Procedure	n (Unweighted)	Percentage Receiving Preventive Services (Weighted)	Multivariate Odds Ratio (95% Confidence Interval)
Blood pressure check			
Total[a]	13 827	78	
Yes usual source of care/yes insurance	9475	85	4.83 (2.40, 9.70)
Yes usual source of care/no insurance	1387	70	4.43 (2.12, 9.25)
No usual source of care/yes insurance	1830	62	1.90 (0.82, 4.39)
No usual source of care/no insurance	1135	46	1.00
Cholesterol check			
Total[b]	5602	51	
Yes usual source of care/yes insurance	3944	59	4.51 (1.50, 13.56)
Yes usual source of care/no insurance	574	45	4.61 (1.28, 16.61)
No usual source of care/yes insurance	701	30	1.67 (0.38, 7.36)
No usual source of care/no insurance	383	16	1.00
Physical examination			
Total	14 536	47	
Yes usual source of care/yes insurance	9840	54	3.17 (2.59, 3.87)
Yes usual source of care/no insurance	1528	38	1.98 (1.58, 2.48)
No usual source of care/yes insurance	1925	30	1.35 (1.09, 1.67)
No usual source of care/no insurance	1243	23	1.00
Dental checkup			
Total	14 825	35	
Yes usual source of care/yes insurance	10 011	41	3.50 (2.75, 4.46)
Yes usual source of care/no insurance	1556	19	1.43 (1.10, 1.87)
No usual source of care/yes insurance	1972	30	2.26 (1.76, 2.89)
No usual source of care/no insurance	1286	13	1.00
Papanicolaou test			
Total[c]	6222	62	
Yes usual source of care/yes insurance	4220	67	7.27 (2.76, 19.13)
Yes usual source of care/no insurance	829	49	1.95 (0.59, 6.44)
No usual source of care/yes insurance	707	56	4.13 (1.22, 14.01)
No usual source of care/no insurance	466	35	1.00
Breast examination			
Total[d]	3413	65	
Yes usual source of care/yes insurance	2591	71	14.13 (1.76, 113.63)
Yes usual source of care/no insurance	356	47	3.44 (0.38, 31.00)
No usual source of care/yes insurance	300	49	7.74 (0.64, 93.18)
No usual source of care/no insurance	166	27	1.00
Mammogram			
Total[d]	3403	52	
Yes usual source of care/yes insurance	2578	57	17.53 (1.49, 206.60)
Yes usual source of care/no insurance	358	36	3.89 (0.28, 54.56)
No usual source of care/yes insurance	299	38	3.29 (0.18, 59.13)
No usual source of care/no insurance	168	16	1.00

[a]Aged 21 years or older.
[b]Women aged 45–64 and men aged 35–64 years.
[c]Women aged 18–64 years.
[d]Women aged 40–69 years.

amination, flu shot, dental checkup, Papanicolaou test (women only), breast examination (women only), mammogram (women only), and prostate examination (men only). These particular items were selected because of their inclusion in the Medical Expenditure Panel Survey and because of recent recommendations by the US Preventive Services Task Force about the usefulness of these services in improving health outcomes.[35]

Data were analyzed in different subsets of the survey population for each of the 9 preventive services based on the US Preventive Services Task Force recommendations to guide inclusion criteria by age and sex. Physical examinations and dental checkups are recommended for adults of all ages; see Table 1 for definitions of subgroups analyzed for each of the other preventive services. Flu shots and prostate examinations were excluded from Table 1 because of the small number of people without both insurance and a usual source of care.

Insurance status and usual source of care. The potentially explanatory variables of primary interest were health insurance coverage and usual source of care. Any insurance coverage, without regard to adequacy, was accepted as having insurance. To determine usual source of care, respondents were asked, "Is there a particular doctor's office, clinic, health center, or other place that you go to if you are sick or need advice about your health?" For comparative analyses, responses about usual source of care and health insurance were divided into 4 categories: (1) yes usual source of care/yes insurance, (2) yes usual source of care/no insurance, (3) no usual source of care/yes insurance, and (4) no usual source of care/no insurance. Receipt of preventive services is, of course, also influenced by other factors. We controlled statistically for additional variables in an effort to assess the specific effects of insurance status and usual source of care. Demographic characteristics included in the analyses for this purpose were age, sex, race/ethnicity, completion of high school (head of household), residence within or outside a metropolitan statistical area, and perceived health status.

TABLE 2—US Adults Reporting Usual Source of Care or Health Insurance

	n (Unweighted)	Percentage Receiving Preventive Services (Weighted)
Yes usual source of care	11 689	79.2
No usual source of care	3306	20.8
Yes insurance	12 109	82.8
No insurance	2886	17.2
Yes usual source of care/yes insurance	10 116	69.5
Yes usual source of care/no insurance	1573	9.7
No usual source of care/yes insurance	1993	13.3
No usual source of care/no insurance	1313	7.5

Analytic Strategy

Four categories were constructed to account for all Medical Expenditure Panel Survey participants in terms of their insurance status and whether they had a usual source of care. Simple comparisons were conducted to determine the relation of demographic characteristics to each of the 4 usual source of care and insurance categories (Tables 2 and 3). Multivariate logistic regression was performed to assess associations of usual source of care and insurance with the use of preventive services among age- and sex-appropriate subgroups, controlling for potentially confounding factors (Table 1). SUDAAN (Research Triangle Institute, Research Triangle Park, NC) software was used to conduct statistical tests and to make national estimates with the variance adjustment required by the complex sampling design of the 1996 Medical Expenditure Panel Survey. In all tables provided, the number of respondents (n) represents the unweighted survey sample size, whereas the reported percentages have been weighted to produce estimates for the entire US population.

RESULTS

More than 79% of the adults had a usual source of care in 1996 (Table 2). Similarly, nearly 83% had health insurance. Almost 70% had both a usual source of care and insurance, whereas fewer than 8% had neither. More than half of the uninsured adults had a usual source of care (1573 of 2886; 54.5%).

Demographics

Several demographic variables were strongly related to having health insurance and a usual source of care (Table 3). For example, more than 90% of respondents older than 64 years reported having both a usual source of care and health insurance compared with only 51% of respondents aged between 18 and 24 years. In contrast, nearly 15% of 18- to 24-year-olds reported no usual source of care and no insurance, compared with fewer than 1% in respondents older than 64. A higher percentage of women (74%) were insured and had a usual source of care compared with men (65%). Eleven percent of the Black population and almost 23% of the Hispanic population reported no insurance and no usual source of care, compared with fewer than 7% of Whites. Adults who had completed high school were more likely to be insured and to have a usual source of care (72%) than were those who had not completed high school (61%). Almost the same proportions of people living inside or outside metropolitan statistical areas had both insurance and a usual source of care (70% and 68%, respectively). Fewer than 3% of the adults who perceived their health status as poor were without both insurance and a usual source of care compared with nearly 8% of those who thought themselves to be in excellent health. Among the insured, about 17% of those who believed themselves to be in excellent health had no usual source of care, whereas fewer than 6% of those reporting poor health had no usual source of care.

Prevention Associated With Insurance Status and Usual Source of Care

Receipt of preventive services supported by the US Preventive Services Task Force was strongly associated with being insured and having a usual source of care (Table 1). Flu shots and prostate examinations were not included because of small numbers in some cells. The group of adults with neither a usual source of care nor health insurance was used as the reference group (odds ratio [OR]=1.0). People with insurance and a usual source of care were the most likely to have received services within the most recent 12 months. A large percentage of people with both a usual source of care and insurance had received 1 or more of the following preventive services within the past 12 months: blood pressure checks, cholesterol checks, physical examinations, dental checkups, Papanicolaou tests, breast examinations, or mammograms. Uninsured people without a usual source of care were the least likely to have received preventive services; for all 7 preventive services, fewer than half of the adults in this subgroup had received the services in the past 12 months.

A blood pressure check (in 46% of adults) was the most common preventive service received by uninsured adults without a usual source of care. Among the women in this subgroup, 35% had received a Papanicolaou test, 27% had received a breast examination, and 16% had received a mammogram. In comparison, 67% of the women with both insurance and a usual source of care had received a Papanicolaou test, 71% had received a breast examination, and 57% had received a mammogram. Only 16% of the uninsured adults without a usual source of care had had their cholesterol levels checked compared with 59% of the adults with both a usual source of care and insurance. About 54% of the adults with both a usual source of care and insurance had received a physical examination, whereas only 23% of the subgroup without both a usual source of care and insurance had received this service. Similarly, dental checkups were received by 41% of the subgroup with both a usual source of care and insurance compared with only 13% of the uninsured without a usual source of care.

TABLE 3—Characteristics of US Adults, by Access to Health Insurance or a Usual Source of Care

	n (% of Total)	Yes Usual Source of Care/ Yes Insurance, n (%)[a]	Yes Usual Source of Care/ No Insurance, n (%)[a]	No Usual Source of Care/ Yes Insurance, n (%)[a]	No Usual Source of Care/ No Insurance, n (%)[a]
Total	14 995	10 116 (69.48)	1573 (9.72)	1993 (13.29)	1313 (7.50)
Age in 1996, y (N = 14 995)					
18–24	1833 (12.78)	880 (51.10)	329 (17.76)	298 (16.55)	326 (14.59)
25–44	6396 (42.88)	3882 (63.25)	765 (11.02)	1018 (15.91)	731 (9.82)
45–64	4323 (27.73)	3165 (75.24)	455 (9.42)	465 (10.64)	238 (4.71)
≥ 65	2443 (16.61)	2189 (90.10)	24 (0.67)	212 (8.52)	18 (0.71)
Sex (N = 14 995)					
Female	8050 (52.18)	5766 (73.91)	897 (9.91)	866 (10.96)	521 (5.22)
Male	6945 (47.82)	4350 (64.64)	676 (9.51)	1127 (15.86)	792 (9.99)
Race (N = 14 995)					
American Indian	181 (1.11)	105 (58.66)	33 (15.93)	24 (15.23)	19 (10.18)
Aleut, Eskimo	8 (0.07)	6 (79.91)	2 (20.09)	0 (0.00)	0 (0.00)
Asian or Pacific Islander	440 (3.53)	279 (63.34)	55 (12.50)	55 (12.31)	51 (11.85)
Black	1941 (11.67)	1251 (61.22)	250 (14.95)	249 (12.83)	191 (11.00)
White	12 410 (83.58)	8472 (71.05)	1231 (8.78)	1662 (13.39)	1045 (6.79)
Other	15 (0.04)	3 (28.29)	2 (7.38)	3 (31.35)	7 (32.98)
Ethnicity (N = 14 995)					
Hispanic	2711 (9.73)	1244 (46.41)	442 (15.97)	416 (14.98)	609 (22.65)
Black/not Hispanic	1844 (11.25)	1193 (61.50)	240 (15.00)	238 (12.78)	173 (10.72)
Other	10 440 (79.02)	7679 (73.46)	891 (8.20)	1339 (13.17)	531 (5.18)
Completed high school (N = 14 995)					
Yes	11 388 (80.06)	8056 (71.58)	1037 (8.65)	1552 (13.65)	743 (6.11)
No	3607 (19.94)	2060 (61.02)	536 (14.01)	441 (11.90)	570 (13.07)
Urban/rural (N = 14 995)					
MSA	11 726 (80.38)	7921 (69.77)	1111 (8.76)	1609 (13.65)	1085 (7.82)
Non-MSA	3269 (19.62)	2195 (68.28)	462 (13.64)	384 (11.86)	228 (6.21)
Perceived health status (N = 14 988)					
Excellent	4140 (28.85)	2671 (66.10)	381 (8.97)	702 (17.04)	386 (7.89)
Very good	4793 (32.95)	3272 (70.07)	444 (8.58)	670 (14.23)	407 (7.12)
Good	3931 (25.27)	2592 (68.73)	485 (11.08)	471 (11.45)	383 (8.74)
Fair	1557 (9.40)	1118 (75.16)	204 (12.21)	118 (6.55)	117 (6.08)
Poor	567 (3.53)	459 (81.84)	59 (10.14)	31 (5.36)	18 (2.67)

Note. MSA = metropolitan statistical area.
[a]Ns/ns are unweighted, and the percentage of this nationally representative sample is weighted.

For breast examinations and mammography, the confidence intervals for odds ratios for subgroups lacking either insurance or a usual source of care contained 1.0, as did 1 of the subgroups for blood pressure checks, cholesterol checks, and Papanicolaou tests. A consistent pattern was found, with likelihood of preventive services being highest for those with both insurance and a usual source of care, lowest for those with neither, and intermediate for those with one or the other.

DISCUSSION

In 1991, the US government published *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* with a goal "to improve the financing and delivery of clinical preventive services so that virtually no American has a financial barrier to receiving at a minimum screening, counselling and immunization services."[36(p215)] As shown in Table 1, after control for several demographic variables, insurance and a usual source of care had independent, additive effects on the receipt of preventive services.

Our study found statistically significant benefit in having both a usual source of care and insurance, which was the optimal condition relative to being uninsured and without a usual source of care. The results were mixed when we compared the 2 "halfway" groups (yes usual source of care/no insurance, no usual source of care/yes insurance). In contrast to findings of some recent studies, having a usual source of care was not always a

more consistent predictor of the receipt of preventive services when we compared people who had either insurance or a usual source of care but not both. Uninsured Americans without a usual source of care are unlikely to receive adequate preventive services. Thus, ensuring that all Americans have both health insurance and a usual source of care is the best way to reach the goals for clinical preventive services set forth in *Healthy People 2000.*

What can be done to help uninsured Americans without a usual source of care, who have the greatest risk of not receiving adequate preventive services? This study showed that access to health insurance and a usual source of care is not randomly distributed among the US population. Efforts aimed at increasing the number of people who have a usual source of care and insurance should target Hispanic and non-White subgroups and those living in households headed by individuals lacking a high school education.

Although emphasizing primary care is a logical strategy to improve preventive services, it is prudent to be wary of becoming overly reliant on a safety net known to be fragile.[7,31,37–39] The value of continuous primary care is well established.[10,26,40–42] Yet that value is dependent on a system relatively free of disruptions of care. Threats to continuity of care, on which the usual-source-of-care relationship depends, undermine the preventive efforts of providers[37,43,44] and such threats have become a major source of physician's primary care dissatisfaction.[45] Potential reductions in charity care from physicians being financially squeezed by today's health care market also indicate the need for caution in assessing the benefits that would likely accrue from policies that ensure a usual source of care.[31,46–48] Additionally, as noted in this study and elsewhere, access to a usual source of care is not a guarantor of prevention services, nor does it ensure availability of prescriptions, specialty care, certain needed procedures, or home care services.[7]

This study adds further reasons to be concerned about increasing strains on US safety-net facilities, the rising number of uninsured people, and inequities in the accessibility of services. Improving preventive service delivery to the entire US population requires expanding health insurance coverage and improving access to comprehensive and continuous primary care services. Our data also indicate that even under the best of circumstances, there is room for improvement in the delivery of preventive services. For example, in the group of adults with both a usual source of care and health insurance, fewer than half had received dental services, and only 54% had received the physical examination recommended by the US Preventive Task Force as a way to provide an opportunity for early detection of cancers and other illnesses.

As important as health insurance and a usual source of care are to receipt of preventive services, they do not in themselves ensure adequate access. In 1996, Medical Expenditure Panel Survey respondents reported difficulty or delay in obtaining needed health care owing to transportation or communication problems as well as to their own physical problems. Others did not have time, child care, or authorization to miss work.[27] Certain of the reasons for not having a usual source of care were related to health insurance. Respondents cited changing health plans, the cost of insurance, and not having a provider in their plan available nearby as reasons for not having a usual source of care.[49]

This analysis had important limitations. As in all surveys, responses are subject to possible reporting error and to response biases not accounted for by statistical adjustments. Our findings are associations between variables and do not establish causal relationships. Uncertainties remain regarding how to define "having health insurance" and "having a usual source of care." Neither the dollar amount nor the services or settings of care covered by insurance were specified. The usual source of care could be a facility or an individual health professional. The Medical Expenditure Panel Survey does not permit determination of the proportion of care a respondent received that was provided by a usual source of care.

CONCLUSIONS

Although having a usual source of care was not consistently shown to be superior to having health insurance, access to a usual source of care may be more achievable through local initiatives and through some less costly approach than guaranteeing universal health care coverage to expanding the delivery of prevention services. However, neither approach displaces the need for the other. Having a usual source of care and having health insurance are independent and additive predictors of the likelihood of receiving preventive care. Both should be pursued to meet our nation's goals for preventive service delivery. ■

About the Authors

Jennifer E. DeVoe is with the Department of Family Medicine, Oregon Health & Science University, Portland, and the Robert Graham Center for Policy Studies in Family Practice and Primary Care, Washington, DC. George E. Fryer, Robert Phillips, and Larry Green are with the Robert Graham Center for Policy Studies in Family Practice and Primary Care, Washington, DC.

Requests for reprints should be sent to George E. Fryer, PhD, Robert Graham Center for Policy Studies in Family Practice and Primary Care, 1350 Connecticut Ave, NW, Suite 950, Washington, DC 20036 (e-mail: efryer@aafp.org).

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Contributors

J.E. DeVoe was the principal author and conceptualized the research with significant input from G.E. Fryer, R. Phillips, and L. Green. G.E. Fryer conducted the analyses. All of the authors participated in the review and revisions on drafts of the article.

Human Participant Protection

No protocol approval was needed for this study.

References

1. Weissman JS, Epstein AM. The insurance gap: does it make a difference? *Annu Rev Public Health.* 1993;14:243–270.
2. Donelan K, Blendon RJ, Hill CA. Whatever happened to the health insurance crisis in the United States: voices from a national survey. *JAMA.* 1996; 276:1346–1350.
3. Davis K, Rowland D. Uninsured and underserved: inequities in health care in the United States. *Milbank Memorial Fund Q.* 1983;61:149–177.
4. Carrasquillo O, Himmelstein DU, Woolhandler S, Bor DH. Going bare: trends in health insurance coverage, 1989 through 1996. *Am J Public Health.* 1999;89: 36–42.
5. *Report on Health Insurance Coverage for All Americans.* Washington, DC: US Bureau of the Census; 2000.
6. Levit K, Olin GO, Letsch SW. America's health insurance coverage 1980–1991. *Health Care Financial Rev.* 1992;14:31–57.
7. Weiss E, Haslanger K, Cantor J. Accessibility of primary care services in safety net clinics in New York City. *Am J Public Health.* 2001;91:1240–1245.
8. Robert Graham Center for Policy Studies in Fam-

ily Practice and Primary Care. The importance of primary care physicians as the usual source of healthcare in the achievement of prevention goals. *Am Fam Physician.* 2000;62:1968.

9. Lambrew JM, DeFreise GH, Carey TS, Ricketts TC, Biddle AK. The effects of having a regular doctor on access to primary care. *Med Care.* 1996;34: 138–151.

10. Bindman AB, Grumbach K, Osmond D, Vranizan K, Stewart AL. Primary care and receipt of preventive services. *J Gen Intern Med.* 1996;11:269–276.

11. Hayward R, Bernard A, Freeman H, Corey C. Regular source of ambulatory care and access to health services. *Am J Public Health.* 1991;81:434–438.

12. Weissman JS, Stern RS, Fielding SL, Epstein AM. Delayed access to health care: risk factors, reasons, consequences. *Ann Intern Med.* 1991;144:325–331.

13. Gross CP, Mead LA, Ford DE, Klag MJ. Physician, heal thyself? Regular source of care and use of preventive health services among physicians. *Arch Intern Med.* 2000;160:3209–3214.

14. Ettner SL. The timing of prevention services for women and children: the effect of having a usual source of care. *Am J Public Health.* 1996;86: 1748–1754.

15. Ettner SL. The relationship between continuity of care and the health behaviors of patients: does having a usual physician make a difference? *Med Care.* 1999; 37:547–555.

16. Sisk J, Gorman S, Reisinger A, Gilied S, DuMouchel W, Hynes M. Evaluation of Medicaid managed care: satisfaction, access, and use. *JAMA.* 1996; 276:50–55.

17. Wasson J, Sauvigne A, Mogielnicki P. Continuity of outpatient medical care in elderly men. *JAMA.* 1984;252:2413–2417.

18. Gill JM, Diamond JJ. Effect of primary care referral on emergency department use: evaluation of a statewide Medicaid program. *Fam Med.* 1996;28: 178–182.

19. Gill J. Can hospitalizations be avoided by having a regular source of care? *Fam Med.* 1997;29:166–171.

20. Grumbach K, Keane D, Bindman AB. Primary care and public emergency department overcrowding. *Am J Public Health.* 1993;83:372–378.

21. Franks P, Clancy CM, Nutting PA. Gatekeeping revisited—protecting patients from overtreatment. *N Engl J Med.* 1992;327:424–427.

22. Stange KC, Jaen CR, Flock SA, Miller WL, Crabtree BF, Zyzanski SJ. The value of a family physician. *J Fam Pract.* 1998;46:363–368.

23. Donahue K, Fryer GE, Phillips R, Green L. The importance of usual source of care for patients with cardiovascular-related conditions. Paper presented at: Academy for Health Services Research Annual Meeting; June 10–12, 2001; Atlanta, Ga.

24. Chen M, Lyttle CS. Multivariate analysis of access to care. In: Anderson FM, Aday LA, Lyttle CS, Cornelius LS, Chen MS, eds. *Ambulatory Care and Insurance Coverage in an Era of Constraint.* Chicago, Ill: University of Chicago, Center for Health Administration Studies; 1987:116–146.

25. Saver BG, Peterfreund N. Insurance, income, and access to ambulatory care in King County, Washington. *Am J Public Health.* 1993;83:1583–1588.

26. Baker DW, Stevens CD, Brooks RH. Regular source of ambulatory care and medical care utilization by patients presenting to a public hospital emergency department. *JAMA.* 1994;271:1909–1912.

27. Weinick RM, Zuvekas SH, Drilea SK. *Access to Health Care: Source and Barriers, 1996.* Rockville, Md: Agency for Health Care Policy and Research; 1997. MEPS Research Findings No. 3. AHCPR publication 98-0001.

28. Centers for Disease Control and Prevention. Demographic characteristics of persons without a regular source of care: selected states, 1995. *MMWR Morb Mortal Wkly Rep.* 1995;47:277–279.

29. Shea S, Misra D, Ehrilick MH, Field L, Francis CK. Predisposing factors for severe uncontrolled hypertension in an inner-city minority population. *N Engl J Med.* 1992;327:1085–1090.

30. Sox CM, Swartz K, Burstin HR, Brennan TA. Insurance or a regular physician: which is the most powerful predictor of health care? *Am J Public Health.* 1998;88:364–370.

31. Cunningham PJ. A changing picture of uncompensated care. *Health Aff (Millwood).* 1997;16:167–175.

32. Tieman J. A community solution: local health centers are credited with keeping the safety net strong: President Bush wants them to play an even bigger role. *Mod Healthcare.* 2003;33(2):26–29.

33. *A Blueprint for New Beginnings: A Responsible Budget for America's Priorities.* Washington, DC: Office of Management and Budget; 2000. Available at: http://www.whitehouse.gov/news/usbudget/blueprint/bud13.html. Accessed May 25, 2001.

34. Zuvekas SM, Weinick RM. Changes in access to care, 1977–1996: the role of health insurance. *Health Serv Res.* 1999;34:271–279.

35. US Preventive Services Task Force. *Guide to Clinical Preventive Services: Report of the US Preventive Services Task Force.* Baltimore, Md: Williams & Wilkins; 1996.

36. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* Washington, DC: US Dept of Health and Human Services; 1991. DHHS publication PHS 91-50212.

37. Cunningham PJ. Pressures on the health care safety net: implications for access to care for the uninsured. *Health Serv Res.* 1999;34:255–270.

38. Cunningham PJ, Grossman JM, Peter RFS, Lesser CS. Managed care and physicians' provision of charity care. *JAMA.* 1999;281:1087–1092.

39. *America's Health Care Safety Net: Intact but Endangered.* Washington, DC: Institute of Medicine; 2000.

40. Love MM, Mainous AG, Talbert JC, Hager GL. Continuity of care and the physician-patient relationship: the importance of continuity for adult patients with asthma. *J Fam Pract.* 2000;49:998–1004.

41. Starfield B. *Primary Care.* New York, NY: Oxford University Press; 1992.

42. Institute of Medicine. *A Manpower Policy for Primary Health Care.* Washington, DC: National Academy of Sciences; 1978.

43. Flock SA, Stange KC, Zyzanski SJ. The impact of insurance type and forced discontinuity on the delivery of primary care. *J Fam Pract.* 1997;45:129–135.

44. Kahana E, Stange KC, Meehan R, Raff L. Forced disruption in continuity of primary care: the patient's perspective. *Sociol Focus.* 1997;30:172–182.

45. DeVoe J, Fryer GE, Hargraves JL, Phillips RL, Green LA. Does career dissatisfaction affect the ability of family physicians to deliver high-quality patient care? *J Fam Pract.* 2002;51:223–228.

46. Cunningham PJ, Kemper P. Ability to obtain medical care for the uninsured. *JAMA.* 1998;280: 921–927.

47. Cunningham PJ, Kemper P. *The Uninsured Getting Care: Where You Live Matters.* Washington, DC: Center for Studying Health System Change; 1998. Issue Brief 15.

48. Cunningham PJ, Whitmore HH. *How Well Do Communities Perform on Access to Care for the Uninsured.* Washington, DC: Center for Studying Health System Change; 1998. Research Report 1.

49. Medical Expenditure Panel Survey. 1996 Full Year Consolidated Data File [electronic file]. Rockville, Md: Agency for Healthcare Research and Quality; 2001. MEPS HC-012. Available at: http://www.meps.ahcpr.gov/Pubdoc/H12CB.PDF. Accessed February 4, 2003.